Name: _____ Class: _____Due Date: _____

When solving the following problem, be sure to:

1) **Restate the <u>question</u>**
2) **State your <u>answer</u> in a complete sentence.**
3) **<u>List</u> facts and important information**
4) **<u>Explain</u> your solution strategy and include your <u>calculations</u>/work.**

Terry's Tiled Patio

Terry is designing a tile patio. Her design has a grey square in the middle and a white border around it. These patios can be different sizes. Four sizes are shown.
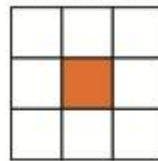
Questions:
1. How many grey and how many white tiles are needed for patio number 10?
2. Find a direct formula to calculate the number of white tiles (W) for any patio number (P).
3. Find a direct formula to calculate the number of grey tiles (G) for any patio number (P).
4. Find a direct formula to calculate the total number of tiles (T) for any patio number (P).
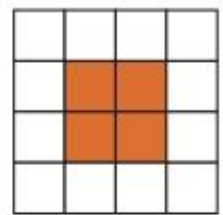5. Explain using drawings or words why your formulas are correct.

Bonus:
1. Terry has a total of 676 tiles that she is going to use to build one of these square patios. What patio number is she going to build?
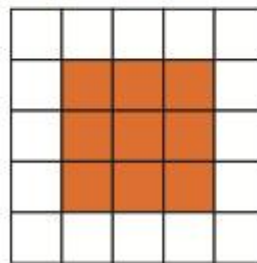2. How many grey and how many white tiles does she have?
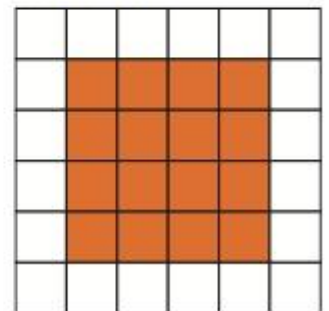
Patio Number 1

Patio Number 2

Patio Number 3

Patio Number 4

Please answer the problem on a separate piece of paper. You must include all your calculations and an explanation of how you got your answer. Your paper will be scored in the following way:

- 4 The answer and the bonus are correct, you have included all your calculations, and the explanation is thorough and understandable.
- 3 The answer is correct, you have included all your calculations, and the explanation is complete and clear to the reader.
- 2 The answer is missing one of the items mentioned above.
- 1 The answer is incorrect, and the explanation or calculations are poor or missing.
- 0 Minimal or no effort was made to solve the problem.
- All late work is marked down a grade.